

## FLUORESCENT PROTEINS

### Abstract

The present invention provides novel engineered derivatives of green  
5 fluorescent protein (GFP) which have an amino acid sequence which is modified by  
amino acid substitution compared with the amino acid sequence of wild type Green  
Fluorescent Protein. The modified GFPs exhibit enhanced fluorescence relative to  
wtGFP when expressed in non-homologous cells at temperatures above 30 °C, and  
when excited at about 490 nm compared to the parent proteins, i.e. wtGFP. An  
10 example of a preferred protein is F64L-S175G-E222G-GFP. The modified GFPs  
provide a means for detecting GFP reporters in mammalian cells at lower levels of  
expression and/or increased sensitivity relative to wtGFP. This greatly improves the  
usefulness of fluorescent proteins in studying cellular functions in living cells.